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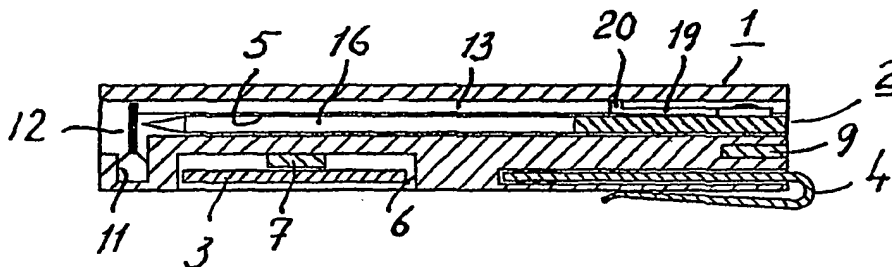
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(54) Title: GREEN RESTORING DEVICE HAVING A GOLF BALL MARKER



(57) Abstract: A green restoring device in the form of a tool by means of which damages, in particular impressions in a golf green, caused by the impact of a golf ball, can be repaired, and comprising a carrier (1) in which a green restoring tool (2) is arranged to be maintained in fully retracted and fully expelled position, respectively, and in which the carrier is made of a non-magnetic material and the carrier (1), at the front end thereof, is formed with means (11, 12; 12a; 12b) for cleaning the tool (2) while the tool is being retracted into the carrier (1). The carrier (1) of the green restoring device is a) at the front end thereof and at the underside thereof formed with a recess (6) having a magnet (7) for holding a marker button easily releasable, and b) at the rear end thereof formed with a built-in magnet (9) for holding the tool (2) under magnetic action in its fully retracted position, and a slot (10), in which a fixing clip (4) is adapted to be secured.

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## GREEN RESTORING DEVICE HAVING A GOLF BALL MARKER

The present invention generally relates to a so called green restoring device, meaning a tool by means of which damages, in particular impressions in a golf green, caused by impacts of a golf ball can be repaired. Any unevenness in a grass surface may change the moving direction of the golf ball, and it is therefore important that such impact impressions are eliminated.

In golf playing there is used a green restoring device for repairing the impact impression that the ball makes in the green. The green restoring device also includes golf ball marker, or a marking button for marking the position of the golf ball on the play ground when said ball is to be lifted up. The marker button is placed adjacent the ball before the ball is allowed to be lifted. The marker button marks the exact position of the ball on the ground and indicates where the ball is to be replaced.

The green restoring device consists of a tool which is enclosed in a carrier and which, when used, is expelled a certain distance out of said carrier. A green repairing tool of the said type is known for instance from the US patent No 6,413,174. In said patent the carrier comprises two plates having opposed cavities which provide a hollow space into and out of which the tool can be introduced and expelled resp. The displacements are made into several fixed positions which are marked by means of a spring pin which engages corresponding recesses in the lower one of the two co-operating plates. For protecting the upper side and the lower side said known green repair tool is formed with upper and lower sides. The lower side is additionally formed with a carrier for a marker.

The known apparatus involves a couple of disadvantages. When retracting the tool into the carrier, after the tool has been used, some sand, gravel and other dirt or impurities irrevocably follow the tool into the carrier, and this may make it difficult or impossible to once again expel the tool. At the same time some impurities also fall down into the pocket in which the green repair tool is kept during the golf tour. Further, the indications for the positions of the tool in the carrier, comprising the spring button and the relatively shallow recesses therefore in the bottom plate of the carrier provide a markedly weak locking of the tool, and due thereto the tool may unintentionally be introduced into the carrier when subjected to the relatively strong pressure which is

necessary for having the tool become pressed down into the ground. Further, said known green repair tool consists of many different parts, and it is complicated and expensive to manufacture.

Further, the known green repair tool has blunt outer edges, and it is therefore  
5 difficult to have said tool penetrate hard green soil. Depending on the blunt outer edges of said tool it also can not be used for cleaning the scores or grooves in the club head.

An important function of the apparatus is that the tool is safely locked in its expelled position in the carrier during the green restoring operation. The tool, which is formed as a metal plate having a recess extending in the longitudinal direction and  
10 which is converging in the direction inwards, can be pressed down into the ground for bringing up a grass divot which is thereafter placed in the impression in the green caused by the impact of the golf ball. The pressure of the tool often can be very strong when said tool is pressed down in the ground, and it is thereby important that the tool is not unintentionally pressed back, more or less, into the carrier. The green restoring  
15 device according to the present invention therefore is formed with a safe, but easily releasable, locking of the tool in its expelled position.

It is also important that it is prevented that sand, gravel and other dirt is introduced into the carrier when the tool is retracted after an impact impression has been restored. Therefore the carrier is, according to the invention, at the front edge  
20 thereof formed with a cleaning means which sweeps or brushes off existing dirt and the bottom side of the tool, and eventually also the upper side thereof. This also prevents dirt from falling down into the pocked in which the green restoring device is normally kept.

The green restoring device according to the invention is of a simple  
25 construction and comprises a carrier made as an integral piece, for instance made by extrusion of aluminium, plastic or any other suitable material, which carrier has a through elongated slot for the tool, a recess at the underside thereof, adjacent the front end, in which a marker button can be kept locked by means of a magnet or in another way, a smaller cavity and the rear side of the carrier for housing of a magnet intended  
30 to keep the tool maintained in its fully retracted position, a further cavity at the rear side of the carrier for fixedly mounting of a holder clip, by means of which the green restoring device can be hanged at the edge of a trouser pocket, at the edge of another

pocket or at any other place.

An important feature of the green restoring device according to the invention is that it is formed with a cleaning means at, or adjacent the front edge thereof, which cleans the bottom side of the tool and/or the upper side thereof while retracting said  
5 tool after it has been used for restoring the green, and which also prevents sand, gravel or any other dirt from becoming retracted into the carrier when the tool is retracted into the carrier, and which also minimizes the intake of gravel into the pocket in which the green restoring device is kept.

Thanks to the existence of the cleaning means and the protecting properties of  
10 the carrier it is possible make the ends of the tool more pointed and narrower than has been usual, and this makes it easier to press down the tool into the ground at the place where the impact impression is to be restored. Thereby the tool also leaves less openings in the ground after it has been used. The pointed ends of the tool also are useful for clearing the grooves of the golf club head. The green restoring device is  
15 normally kept un-protected in the pocket of the trousers, and it is thereby important that the pointed and sharp tool does not damage the fabric of the pocket of the hand which is to handle the green restoring device.

The invention now is to be described more closely with reference to the accompanying drawings. In the drawings figure 1 shows a green restoring device as  
20 seen in a perspective view obliquely from above and with the tool in its retracted position. Figure 2 shows the green restoring device in the same way as in figure 1 but with the tool in its expelled position. Figure 3 is a top plan view of the tool of the green restoring device, and figure 4 is a cross section view through the tool, as seen along line IV-IV of figure 3. Figure 5 is a vertical cross section through the carrier, figure 6 is a  
25 side view of the tool, figure 7 shows a side view of a marker button, and figure 8 shows a side view of a holder clip. Figure 9 is a view from behind of the green restoring device as seen in the direction of the arrow XI of figure 5. The opening of figure 9 is covered by a protection material having a possibility of opening the cavity for the holder clip. Figure  
10 is a vertical cross section view through a complete green restoring device shown  
30 with the tool retracted into the carrier, and figure 11 correspondingly shows the green restoring device with the tool in its expelled position. Figure 12 shows an alternative embodiment of a green restoring device according to the invention seen in a

perspective view obliquely from above. Figure 13 shows a longitudinal cross section through the green restoring device according to figure 12, as seen along line XII-XII, with the tool in its retracted position, and figure 14 shows the same cross section view as in figure 13 but with the tool in its expelled position.

5           The green restoring device shown in figures 1-11 generally comprises a carrier 1, a tool 2, a marker button 3 and may optionally be formed with a fixing clip 4.

          The carrier 1 can be made by extrusion in an integral piece of material of a type on non-magnetic material, like aluminium or a plastic material. The carrier is formed an inner longitudinal slot 5 for the tool 2, a preferably circular recess 6 adjacent the front  
10   edge of the carrier, which recess is, at the bottom thereof, formed with a rectangular magnet 7 for easily releasable holding a marker button 3 fixed thereto. At the rear end the carrier is formed with a slot 8 for mounting of a magnet 9 intended to keep the tool 2 secured when introduced in the carrier 1. At the rear edge there may also be a slot 10 for optionally introducing and locking of a fixing clip 4, by means of which the green  
15   restoring device can be hanged in the edge of a pocket, in a belt of similar. At the front edge the carrier is also formed with a recess 11, in which a brush 12 for cleaning the tool 2 can be mounted. Adjacent to each side edge at the upper side the carrier is formed with a rib 13 for guiding the tool 2. The brushes are preferably mounted in a plastic carrier which is secured in the recess(es) 11 by means of spikes or similar  
20   projecting means which engage the sides of said recess(es).

          The tool is made as a plate of magnetic material, which comprises a guiding base part 14 having parallel side edges which are guided between the ribs 13, and a fork like end part 15, the allow shaped branches 16 of which extend at an angle out from each other thereby forming a converging slot 17. The branches 16, which are  
25   preferably formed with dotted edges, are suited for being pressed obliquely down into the ground and for digging up a sand/grass divot adapted to be placed in an impact impression caused by the impact of a golf ball. The base 14 of the tool has a spring clamp 18 at the upper side thereof, which clamp is riveted or welded to said base, and which with a front end thereof provides an bent up spring 19 having a hook 20 intended  
30   to snap up and lock the tool 2 against the front edge in its expelled position.

          Alternatively the clip 18 is formed so that it can slide in the transversal direction so that the releasing button 21 can not become locked in the guide slot 22 or can be braked in

said slot 22. The outer end hook 20 of the spring clamp preferably is formed as C to the effect that said hook can be locked against the locking rib 23, thereby keeping the tool in expelled position also when the tool 2 is used in solid and hard soil.

For releasing of the spring 19, 20 that has snapped up it is formed with a releasing button 21 which upon depression releases the hook 20 so that the tool can be introduced in the carrier. At the upper side the carrier is, to that end, formed with a longitudinal slot 22 in which the releasing button 21 can slide between a fully retracted and a fully expelled position.

The marker button 3 is preferably of a magnetic material and has a slightly less area than that of the recess 6. The magnet 7 for the button has less diameter than that of the recess, it projects slightly above the bottom of the recess, so that the button 3 can be released by pressing same at a place of the edge thereof, as indicated in figure 11.

The tool is kept in place by magnetic action in its fully retracted position in that the magnet 9 at the rear end of the carrier 1 actuates the guiding base 14 or the spring clamp 18, which is made of some magnetic material.

As most clearly shown in figure 5 the carrier is, at the front end thereof, formed with a recess 11 in which a cleaning means 12, for instance a brush, a pad or another means is mounted for scratching off sand, gravel or any other dirt from the tool 2 when said tool is retracted into the carrier. As indicated in figures 12-14 the device can be formed with two separate cleaning means, one means 12a acting against the bottom side of the tool, the second means 12b acting against the top side of the tool. In this latter case it may be suitable to provide a locking rib 23 slightly inside of the end of the carrier, against which rib 23 the spring hook engages lockingly in the expelled position, see figure 14.

For making it possible to hook connect the green restoring device to some article of clothing it is formed with a fixing clip 4 which can be introduced into the slot 10.

When using the device the tool 2 is expelled out of the carrier by actuating the button 21 until the hook 20 engages the front edge of the carrier or the locking rib 23, so that the tool is maintained safely in its expelled position. The tool is thereafter pressed down into the ground aside of an impression caused by an impact of a golf

ball, and a suitably large divot of grass or soil is bent up and is placed in the impact impression and is pressed down so that the ground becomes even again. After the restoring of the impact impression the releasing button 21 is pressed down, so that the spring hook 20 gets free from the front edge of the carrier, or from the locking rib 23,  
5 whereupon the tool is retracted into the carrier, where it is kept in place by co-operation with the magnet 9 and the magnetic material of the tool and/or the spring clamp 18 thereof.

## REFERENCE NUMERALS

|    |    |                            |
|----|----|----------------------------|
|    | 1  | carrier                    |
|    | 2  | tool                       |
|    | 3  | marker button              |
| 5  | 4  | fixing clip                |
|    | 5  | slot for tool              |
|    | 6  | recess (for marker button) |
|    | 7  | magnet                     |
|    | 8  | slot                       |
| 10 | 9  | magnet                     |
|    | 10 | slot for clip              |
|    | 11 | recess for brush           |
|    | 12 | brush (a, b)               |
|    | 13 | rib                        |
| 15 | 14 | guiding base               |
|    | 15 | fork like end              |
|    | 16 | branches                   |
|    | 17 | slot                       |
|    | 18 | spring clamp               |
| 20 | 19 | spring                     |
|    | 20 | spring hook                |
|    | 21 | releasing button           |
|    | 22 | slot (longitudinal)        |
|    | 23 | locking rib                |



## CLAIMS

1. A green restoring device in the form of a tool by means of which damages, in particular impressions in a golf green, caused by the impact of a golf ball, can be repaired, and comprising a carrier (1) in which a green restoring tool (2) is arranged to be maintained in fully retracted and fully expelled position, respectively, **characterized** in that the carrier of the green restoring device, at the front end thereof, is formed with means (11, 12; 12a; 12b) for cleaning the tool (2) while the tool is retracted into the carrier (1).

2. A green restoring device according to claim 1, **characterized** in that the carrier (1) is formed as an integral piece of material, for instance by being extruded or by being casted.

3. A green restoring device according to claim 1 or 2, **characterized** in that the carrier (1) is formed with an elongated slot (5), in which the tool (2) can be displaced between a fully retracted and a fully expelled position.

4. A green restoring device according to claim 1, **characterized** in that the means for cleaning the tool (2) comprises a cross extending brush (12) which is mounted with the base thereof in a recess (11) in the lower and eventually also the upper part of the carrier (1) and with the brush in contact with the lower side and eventually also the upper side of the tool (12) for striking off sand, gravel and other dirt when the tool is retracted into the carrier (1).

5. A green restoring device according to any of the preceding claims, **characterized** in that the tool (2) is formed as a plate having a guiding base (14) and two fork branches (16) projecting forwardly and arranged converging to each other, thereby leaving a conically outwards extending slot (17), and which on one side thereof, preferably the upper side carries a spring clamp (18) having a spring (19) with an outer hook (20) which is arranged to spring-lockingly engage the outer edge of the carrier (1) of another part of the carrier (23), so as to be kept locked in the carrier in fully expelled position.

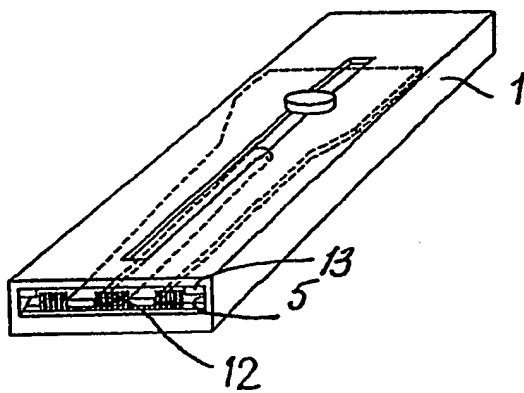
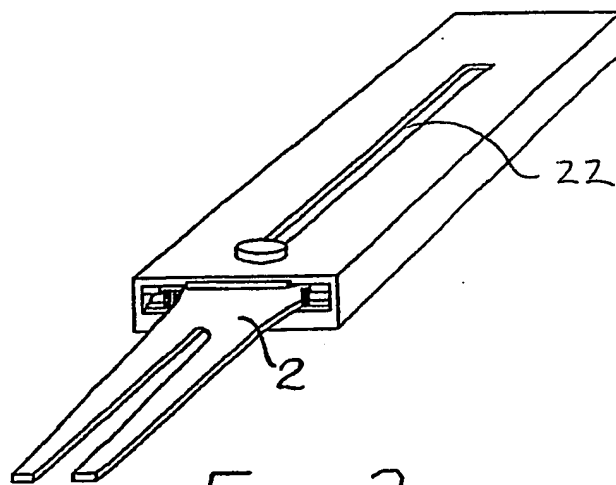
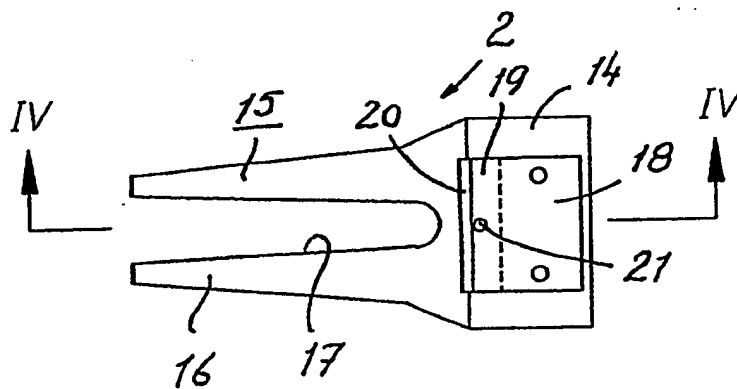
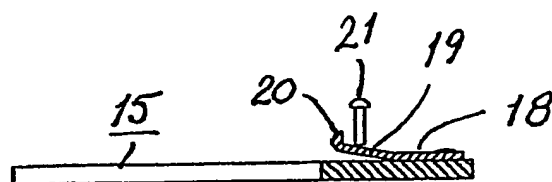
6. A green restoring device according to claim 5, **characterized** in that the spring (19) with the locking hook (20) is arranged for being released by means of a

releasing button (21) engaging the spring (19) and projecting through a slot (22) of the carrier, and which by being depressed presses down and releases the locking hook (20) from its engagement with any part of the carrier (1).

7. A green restoring device according to any of the preceding claims,
- 5 **characterized** in that the tool (2), or at least a rear part thereof is of a magnetic material, and in that the carrier, at the rear part thereof (8) is formed with a magnet (9) which holds the tool (2) by magnetic action in the fully retracted position of the tool (2) in the carrier (1).

8. A green restoring device according to any of the preceding claims,
- 10 **characterized** in that the carrier (1) and the lower side thereof and at the front part thereof is formed with a recess (6) for a marker button (3), which recess preferably is circular and has, at the bottom thereof, a projecting magnet (7) which has less diameter than the diameter of the recess (6).

9. A green restoring device according to any of the preceding claims,
- 15 **characterized** in that the carrier (1), at the rear part thereof, has a slot (10) in which a fixing clip (4) is adapted to be mounted, which clip (4) is formed for allowing a holding of the green restoring device in any optional place, for instance a piece of clothing.

**10/540603***Fig. 1**Fig. 2**Fig. 3**Fig. 4*

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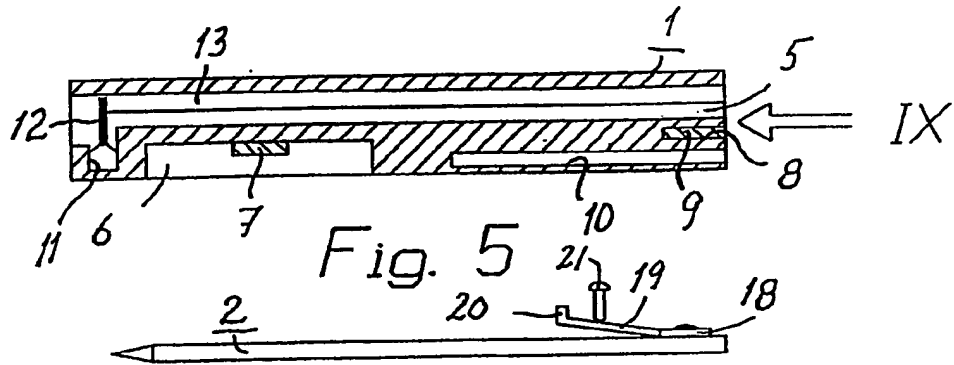


Fig. 5

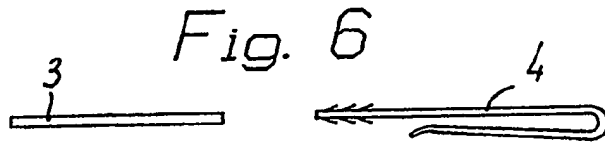


Fig. 7

Fig. 8

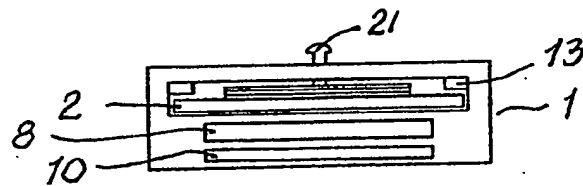


Fig. 9

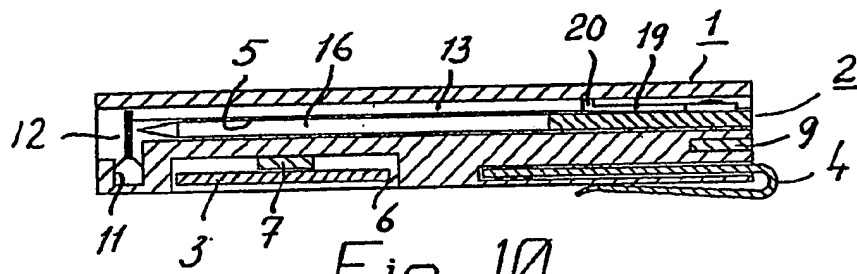


Fig. 10

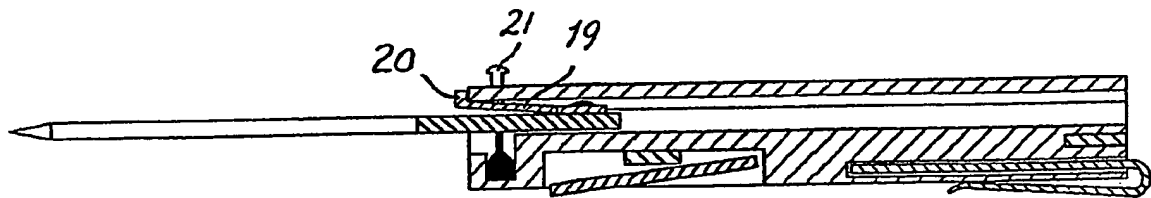
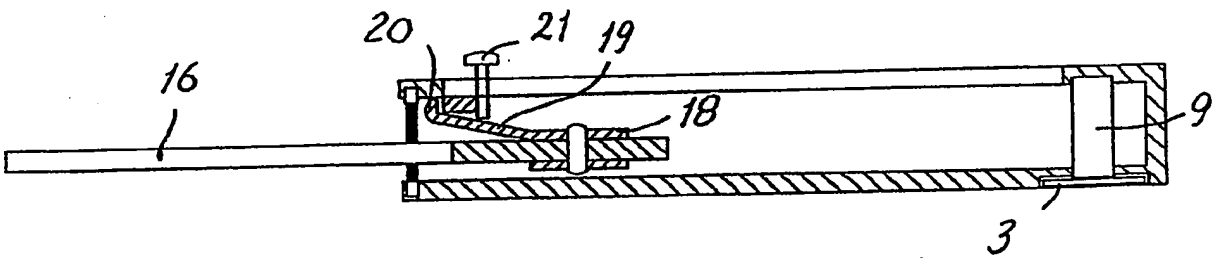
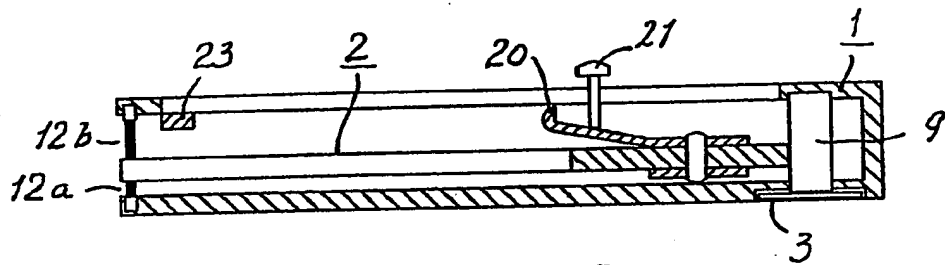
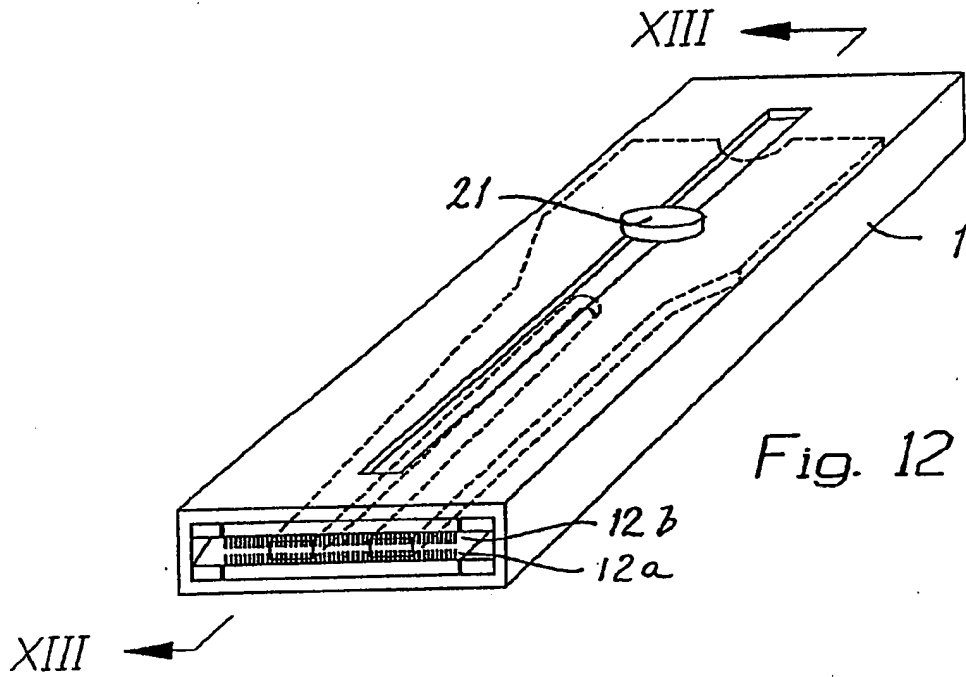


Fig. 11

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2004/000019

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A63B 57/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A63B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages       | Relevant to claim No. |
|-----------|--|-----------------------|
| A         | US 6428430 B1 (C.M. CHONG), 6 August 2002<br>(06.08.2002), figure 9, abstract<br>--      | 1-9                   |
| A         | US 6413174 B1 (D.M. ROBERTS), 2 July 2002<br>(02.07.2002), figure 1, abstract<br>--      | 1-9                   |
| A         | US 5449169 A (C.R. HARDIN ET AL), 12 Sept 1995<br>(12.09.1995), figure 3, abstract<br>-- | 1-9                   |
| A         | US 4955609 A (A.D. KASSEN), 11 Sept 1990<br>(11.09.1990), figures 2,3, abstract<br>--    | 1-9                   |

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

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Date of the actual completion of the international search

6 February 2004

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2004/000019

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                  | Relevant to claim No. |
|-----------|---|-----------------------|
| A         | SE 463015 B (L.R. MELLIN), 1 October 1990<br>(01.10.1990), figures 1,2, abstract<br><br>--<br>----- | 1-9                   |

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

24/12/2003

International application No.

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|    |         |    |            |      |            |            |
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| US | 6428430 | B1 | 06/08/2002 | NONE |            |            |
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